

## I CLAIM

1. In an aircraft servicing pit defining a subsurface chamber below a surface across which aircraft travel when not airborne having at least one upright wall and an upwardly opening mouth formed by a continuous rim that has an enclosing perimeter that circumscribes and defines said mouth, and including a pit lid having an upper surface and an undersurface disposed atop said mouth and hinged for rotation relative to said upright wall about a lid hinge axis to an open position completely free from said rim and alternatively to a closed position sealing said mouth and seated throughout said entire perimeter of said rim, the improvement comprising:

a pair of pit lid arms supporting said pit lid and having distal ends that are secured to said undersurface of said pit lid at a spaced distance of separation from said lid hinge axis and proximal ends that are rotatably joined to said upright wall at said lid hinge axis beyond the perimeter of said rim and beneath said surface across which aircraft travel,

at least one counterweight arm hinge pin located beyond said perimeter of said rim and beneath the level of said surface across which aircraft travel,

a pair of counterweight supporting arms each having a distal end bearing a counterweight and an opposite proximal end rotatably joined to said pit at said at least one counterweight arm hinge pin,

at least one pit lid gear rigidly secured to said proximal end of at least one of said pit lid arms,

25                   at least one counterweight gear rigidly secured to said proximal  
end of at least one of said counterweight arms, and said pit lid gear and said  
counterweight gear are meshed together, whereby said distal ends of said counterweight  
arms are raised as said pit lid is moved to said closed position and lowered as said pit  
lid is moved to said open position.

2.     An aircraft servicing pit according to Claim 1 wherein said lid arms both  
have a U-shaped configuration between their proximal and distal ends.

3.     An aircraft servicing pit according to Claim 1 further comprising a  
resilient, sealing loop of flexible material disposed about said pit lid so as to reside in  
liquid-tight sealing engagement therewithin throughout said perimeter of said rim when  
said pit lid is in said closed position.

4.     An aircraft servicing pit according to Claim 3 wherein said sealing loop is  
formed of a rubber gasket and said pit lid is provided with an outwardly directed gasket  
seating channel extending about its entire periphery and said rubber gasket is entrapped  
in said seating channel.

5.     An aircraft servicing pit according to Claim 1 further comprising a shock  
absorber interposed between at least one of said counterweight arms and said upright pit  
wall.

6.     In an aircraft servicing pit buried below a surface across which aircraft  
travel and defining a subsurface chamber and having at least one upright wall at the top  
of which a pit access lid capable of withstanding the weight of the tires of an aircraft

traveling thereacross is mounted on a lid hinge for rotation about a horizontal pit access  
5 lid axis, and including a gravity operated balancing mechanism having at least one  
counterweight located in said subsurface chamber and mounted relative to said wall by  
at least one counterweight arm and at least one counterweight hinge means for rotation  
about a counterweight axis parallel to said pit access lid axis, and a pair of meshed  
10 gears for joining said lid and said counterweight arm for movement in counterrotation  
together, whereby said at least one counterweight exerts a rotational moment opposed  
to and less than the moment resulting from the weight of said lid, the improvement  
comprising a pair of pit lid lifting arms having distal ends fastened to said lid at  
locations remote from said pit access lid axis and proximal ends hinged relative to said  
15 pit at said pit access lid axis and rigidly secured at said pit access lid axis to one of said  
meshed gears in said pair of gears, and at least one counterweight arm is rigidly  
secured to the other of said gears in said pair of gears, and both said pit access lid axis  
and said counterweight axis are located beneath said surface across which aircraft  
travel, and said pit access lid is rotatable about said pit access lid axis in counterrotation  
20 with said counterweight arm between a raised, open position permitting access to said  
subsurface chamber and a lowered, closed position in liquid-tight sealed relation atop  
said subsurface chamber.

7. An aircraft servicing pit according to Claim 6 further comprising a shock  
absorber mounted on said counterweight arm, and said shock absorber cushions impact  
of said counterweight relative to said upright wall of said pit when said pit access lid is

rotated to said open position.

8. An aircraft servicing pit according to Claim 7 wherein said pit is provided with an access mouth at its upper extremity defined by a continuous, closed rim completely circumscribing said mouth, and said pit access lid has an outer periphery with a continuous, resilient sealing gasket extending thereabout in a loop, and said  
5 sealing gasket contacts said rim throughout when said pit access lid is in said closed position, to thereby formed a liquid-tight seal between said gasket and said rim.

9. An aircraft servicing pit according to Claim 8 wherein said counterweight axis and said lid axis and are both located mutually adjacent and parallel to each other beneath said surface across which said aircraft travels and laterally beyond said rim.

10. An aircraft servicing pit according to Claim 9 wherein said pit lid lifting arms include intermediate portions each formed in a U-shaped configuration between their proximal and distal ends.

11. An aircraft servicing pit according to Claim 7 wherein said shock absorber may be adjusted in its location on said counterweight arm to extend a selected distance therefrom in a direction toward said upright wall.

12. An aircraft servicing pit comprising:  
a pit buried beneath a surface across which aircraft travel and having a mouth opening at its upper end and at least one upright wall therewithin, and defining within its structure a subsurface chamber for use in servicing aircraft,  
5 an access lid that is able to withstand the weight of the tires of an

aircraft traveling thereacross located at said mouth of said pit,

at least one hinge mounting said lid to said pit at said mouth thereof so that said lid is movable in rotation about a lid axis to an open position completely clear of said mouth and a closed position completely sealing said mouth throughout its perimeter with a liquid-tight seal therebetween,

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counterweight means mounted within said subsurface chamber for rotatable movement in an arcuate path relative to said upright pit wall about a counterweight axis parallel to said lid axis, and

coupling means rigidly linking said counterweight means to move in counterrotation with said lid.

13. An aircraft servicing pit according to Claim 12 wherein said counterweight means is comprised of a pair of counterweight arms and a pair of counterweights attached to said counterweight arms at a selected distance from said coupling means, and further comprising a shock absorber interposed between said counterweight arms and said upright wall of said pit.

14. An aircraft servicing pit according to Claim 13 wherein said pit lid is provided with a resilient loop of gasket material about its periphery that creates said liquid-tight seal at said mouth.

15. An aircraft servicing pit according to Claim 14 wherein said periphery of said pit lid is equipped with a radial channel to receive said loop of gasket material.

16. An aircraft servicing pit according to Claim 15 further comprising a pair

of pit lid arms having proximal ends forming said hinge and joined to said coupling means and distal ends secured to said pit lid at its underside at locations remote from said hinge and within said perimeter of said pit and said pit lid arms have a U-shaped configuration between their proximal and distal ends.